CLAIM AMENDMENTS

Please add new claims 17-20.

Please amend claim 9 as follows.

1. (Original) A method, comprising:

converting an optical beam emitted from a laser to a current proportional to a power of the optical beam using a monitor photodiode;

adjusting the current from the monitor photodiode up or down using a thermistor and resistor network to compensate for a change in optical fiber tracking;

adjusting the current from the monitor photodiode up or down using an automatic power control loop in response to a change in temperature using an automatic power control loop;

processing the current adjusted by the thermistor and resistor network with the current adjusted by the automatic power control loop; and

applying the processed currents to the laser to change the power of the optical beam emitted from the laser.

2. (Original) The method of claim 1, wherein the optical beam is emitted from a back facet of the laser.

3. (Original) The method of claim 2, wherein applying the processed currents to the laser to change the power of the optical beam emitted from the laser comprises applying the processed currents to the laser to adjust the power of the optical beam emitted from a front facet of the laser.

4. (Original) The method of claim 3, wherein applying the processed currents to the laser to adjust the power of the optical beam emitted from the front facet of the laser comprises maintaining constant a ratio of power of the optical beam emitted from the back facet of the laser to the power of the optical beam coupled into an optical fiber at the front facet of the laser.

5. (Original) The method of claim 1, further comprising coupling the optical beam to the monitor photodiode using lens backscatter.

6. (Original) The method of claim 5, wherein applying the processed currents to the laser to change the power of the optical beam emitted from the laser comprises applying the processed currents to the laser to adjust the power of the optical beam emitted from a top facet of the laser.

7. (Original) The method of claim 6, wherein applying the processed currents to the laser to adjust the power of the optical beam emitted from the top facet of the laser comprises maintaining constant a ratio of power of the optical beam emitted from the top facet and backscattered from a lens or other optical component into the monitor photodiode to the power of the optical beam coupled into an optical fiber at the top facet of the laser.

8. (Previously Presented) An apparatus, comprising:

a laser to emit an optical beam;

a photodiode coupled to receive the optical beam from the laser and to convert the optical beam to a current;

first circuitry coupled to receive the current and to adjust the current as temperature changes and to compensate for changes in optical fiber tracking; and

second circuitry coupled to receive the adjusted current and to provide the adjusted current to the laser to adjust power in the optical beam emitted by the laser.

9. (Currently Amended) The apparatus of claim 8, wherein the first circuitry comprises:

a resistor having a first node and a second node; and

a thermistor having a first node and a second node,

wherein the first node of the resistor and the first node of the thermistor are ~~a thermistor and resistor network~~ coupled to receive the current from the photodiode.

10. (Original) The apparatus of claim 9, wherein the second circuitry comprises:

a current gain device having a first input and a second input; and

a digital-to-analog converter having an output coupled to the first input,

the thermistor network coupled to the second input.

11. (Original) The apparatus of claim 10, wherein the thermistor network has a negative temperature coefficient.

12. (Original) The apparatus of claim 10, wherein the laser is an un-cooled distributed feedback (DFB) laser.

13. (Original) The apparatus of claim 10, wherein the laser is an un-cooled vertical cavity surface emitting laser (VCSEL) laser.

14. (Previously Presented) A system, comprising:

a transponder having a laser to emit light, a photodiode coupled to receive light from the laser and to convert the light to a current, first circuitry coupled to receive the current and to adjust the current as temperature changes, and second circuitry coupled to receive the adjusted current and to provide the adjusted current to the laser to adjust light emitted by the laser, wherein the first circuitry is further to compensate for changes in optical fiber tracking; and

an erbium-doped fiber amplifier (EDFA) coupled to the transponder.

15. (Original) The system of claim 14, further comprising a multiplexer coupled to the EDFA.

16. (Original) The system of claim 15, further comprising an add-drop multiplexer coupled to the EDFA.

17. (New) An apparatus, comprising:

a laser to emit an optical beam, the laser having at least one input and at least one output;

a photodiode having an input coupled to one output of the laser, the photodiode to convert the optical beam to a current;

a resistor having a first node coupled to a second node of the photodiode;

a thermistor having a first node coupled to the first node of the resistor and the second node of the photodiode;

an integrator having an input coupled to a second node of the thermistor and the a second node of the resistor;

a digital-to-analog converter having an input coupled to an output of the integrator;

a current gain device having an input coupled an output of the digital-to-analog converter, wherein an output of the digital-to-analog converter is coupled to an input of the laser.

18. (New) The apparatus of claim 17, wherein the thermistor network has a negative or a positive temperature coefficient.

19. (New) The apparatus of claim 17, wherein the integrator, digital-to-analog converter, and current gain device are located on the same chip.

20. (New) The apparatus of claim 17, wherein the current gain device is one of a field effect transistor (FET) or bipolar transistor (BJT)